S41-6 Pharmacometallomics based on the biocoordination and bioinorganic chemistry of first-transition metals

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Today, Japanese people seem to build the unhealthy bodies by themselves on the grounds of imbalanced intake and consumption of daily calories. As many people excessively intake three major nutrients such as fat, carbohydrate, and proteins, and are also short of exercise because of changing the life style, they tend to get obese, which causes the pathogenesis of hyperlipemia, hypertension, and diabetes mellitus, and finally develop to arteriosclerosis. This indicium is recently called as metabolic syndrome which increases rapidly for the recent five years. On the other hand, people become deficient in the intake of vitamins and minerals, and thus the importance of nutritional science and its research is recognized anew. From those back ground, we have tried to examine the development of inorganic elemental medicine preventing or treating the life-styled diseases on the basis of the close interaction with essential trace metals and living body. Around the same time, the research of metallomics has exponentially developed along with advancement of analytical techniques and instruments. In the present study, with a view to explore the candidates exhibiting the effects against the life-styled diseases, we have cyclopaedically evaluated and then propose the pharmacometallomics for the first-transition bio-metal ions and those complexes such as V, Cr, Mn, Fe, Co, Ni, Cu, and Zn, that is newly found to be the metal elements-activity and action relationship among the inhibition of intestinal α-glucosidase and pancreatic lipase, insulin-mimetics in the adipocytes, inhibition of serum ACE, and suppression of lipid-peroxidation in the liver microsome.